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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,901	08/28/2001	James Gary Pruett	HTI-8091	5152
23575	7590	05/14/2004	EXAMINER	
JOSEPH G CURATOLO, ESQ. RENNER KENNER GREIVE BOBAK TAYLOR & WEBER 24500 CENTER RIDGE ROAD, SUITE 280 WESTLAKE, OH 44145			CAIN, EDWARD J	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/940,901	PRUETT, JAMES GARY	
	<b>Examiner</b>	<b>Art Unit</b>	
	Edward J. Cain	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                                     |

Claims 1-38 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 2, and claims 3-38 through their dependency, recite surface areas for inorganic particles. However, the means for determining such surface areas are not specified. This omission renders the claims indefinite since different methods will yield vastly different values. For example, BET measurements versus calculated values based on particle size.

Claim 41 recites the "pure pyrolytic carbon of claim 30". Claim 30 is drawn to a process.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-9, 12, 21, 22, 28-38, 41 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Funkenbusch et al.

Funkenbusch et al disclose methods for the production of pyrolytic carbon coated inorganic oxide particles. These inorganic oxide particles are taught as having diameters of about 1-500  $\mu\text{m}$  and surface areas of 5-300  $\text{m}^2/\text{g}$  (see claim 1) and as. The methods disclosed comprise vapor deposition of carbon using hydrocarbons as the carbon source at temperatures of between 500 and 1500 C (claim 1 and column 8, line 3) and as producing carbon coatings of up to 20 Angstroms thick.

The inorganic oxides of the reference are seen as meeting applicants limitation to ceramic.

The reaction apparatus described in Example 9, for example, is seen as meeting applicants' limitation to "packed bed".

While the reference is silent regarding the structure of the carbon formed, it is assumed that the structure would inherently be one of the three claimed in rejected claim 35. Further, since the thickness of the carbon formed by the reference is of the order of one atomic layer to 20 Angstroms, this carbon is seen as amorphous since little opportunity for crystal growth is afforded with layers of such dimensions.

Regarding applicants' limitations to purity of carbon in the rejected claims, the claim language is not seen as excluding a non-carbon core which makes up a substantial percentage of the overall particle, but only requiring that the carbon layers produced are of such purity.

Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funkenbusch et al in view of Alig et al.

Funkenbusch et al disclose processes for the production of pyrolytic carbon as discussed above. The reference fails to explicitly recite the carbon sources claimed in the rejected claims.

The reference to Alig et al teaches that many other hydrocarbons, including those claimed by applicant, are suitable for the production of pyrolytic carbon.

It would have been obvious to one of ordinary skill in the art to substitute the hydrocarbons taught by Alig et al in the processes of the primary reference with the reasonable expectation that suitable products would result.

Claims 32-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Alig et al.

Alig et al disclose methods for the production of carbon fibers by pyrolytic processes using natural gas as the carbon source (abstract) and reaction temperatures such as claimed instantly. These fibers are taught as having diameters as small as 0.05 um (column 2, line 29) and thus are seen as meeting applicant's definition of whiskers at page 5 of the instant specification.

While the reference is silent regarding the microstructure, these carbon fibers are seen as inherently meeting one of the three microstructures claimed instantly.

The carbon fibers produced are seen as meeting applicants limitations to % carbon since only a nucleating agent is present in the reactor and is seen as contributing very little to the overall composition of the fibers produced.

Claims 32-38 are product by process claims. The process limitation will be given patentable significance upon a showing that patentably distinct properties arise from the process.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alig et al.

Alig et al disclose carbon fibers as discussed above. The reference fails to explicitly recite thermoplastic resins incorporating these fibers. It is the position of the examiner, however, that the discussion of the use of carbon fibers at column 1, lines 10-17 renders obvious thermoplastic compositions comprising pyrolytic carbon fiber.

Claims 48 and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al.

Tanaka et al disclose battery electrodes comprising pyrolytic carbon. While the process of producing the carbon may differ from that claimed by applicant, patentably distinct properties will only be considered upon a showing of such properties arising from the instant processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward J. Cain whose telephone number is (571) 272-1118. The examiner can normally be reached on M-F from 10:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on 571 272-1118. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edward J. Cain  
Primary Examiner  
Art Unit 1714

A handwritten signature in black ink, appearing to be 'E. J. Cain', written over the printed name and title.